

What is claimed is:

1. A plastic container, comprising:
 - a mouth;
 - a bottom surface; and
 - 5 a container wall between the mouth and the bottom surface,
wherein one of the bottom surface or the container wall flexes inward into the
cavity of the plastic container;
wherein further the inward flexing of the bottom surface of the container wall
reduces a pressure differential between the inside of the container and atmospheric
10 pressure when either the container is hot-filled with food product or when the container is
transported from a locale of lower atmospheric pressure to higher atmospheric pressure;
and
wherein further the non-flexing surface maintains the same form from prior to
hot-filling or transport.
- 15 2. The plastic container of claim 1, wherein the thickness of the container walls decreases
from a point substantially at the mouth to a point substantially at the bottom surface.
3. The plastic container of claim 1, wherein the bottom surface flexes inward into the
container cavity.
4. The plastic container of claim 3, wherein the circumference of the mouth is greater than
20 the circumference of the bottom surface.
5. The plastic container of claim 4, wherein the plastic comprises a plastic suitable for solid
phase pressure forming.
6. The plastic container of claim 5, wherein the plastic further comprises polypropylene.

7. The plastic container of claim 6, wherein the plastic further comprises a barrier enhancement agent.
8. The plastic container of claim 7, wherein the barrier enhancement agent comprises ethylene vinyl acetate-vinyl alcohol.
- 5 9. The plastic container of claim 8, wherein the plastic further comprises an adhesive suitable for solid phase pressure forming.
10. The plastic container of claim 9, wherein the adhesive comprises an antioxidant
11. The plastic container of claim 5, wherein the plastic container is formed from a plastic sheet comprising up to about 15 volume % ethylene vinyl acetate-vinyl alcohol, about 80
10 to about 90 volume % polypropylene and about 15 to about 20 volume % adhesive.
12. The plastic container of claim 1, wherein the plastic container is formed from a plastic sheet having one or more layers, and wherein further the thickness of the container walls are about 70-80 volume % of the thickness of the plastic sheet at a location substantially adjacent to the container mouth and about 20-40 volume % of the sheet at a location
15 substantially adjacent to the bottom surface, and the thickness of the bottom surface is about 15-20 volume % of the thickness of the plastic sheet.
13. The plastic container of claim 12, wherein the container wall thickness uniformly decreases from a location substantially adjacent to the container mouth to a point substantially adjacent to the bottom surface.
- 20 14. The plastic container of claim 13, wherein the container walls are about 0.7 mm thick at a location substantially adjacent to the container mouth and about 0.28 mm thick at a point substantially adjacent to the bottom surface, and the thickness of the bottom surface is about 0.16 mm.

15. A method for forming a plastic container, comprising:

selecting at least one polymer for a plastic container; and

forming the plastic container;

wherein the plastic container comprises:

5 a mouth;

a bottom surface; and

a container wall between the mouth and the bottom surface,

wherein one of the bottom surface or the container wall flexes inward into the
cavity of the plastic container;

10 wherein further the inward flexing of the bottom surface of the container wall
reduces a pressure differential between the inside of the container and atmospheric
pressure when either the container is hot-filled with food product or when the container is
transported from a locale of lower atmospheric pressure to higher atmospheric pressure;
and

15 wherein further the non-flexing surface maintains the same form from prior to
hot-filling or transport.

16. The method of claim 15, wherein forming the container comprises:

heating the plastic sheet to its VICAT temperature; and

thermoforming the container.

20 17. The method of claim 15, wherein forming the container comprises extrusion, vacuum
forming, injection molding, blister packaging, melt phase forming or blow molding.

18. A method of manufacturing a plastic container with a selectively deformable surface,
comprising:

selecting at least one polymer;
heating the at least one polymer to its VICAT temperature; and
thermoforming a container from the heated polymer;

wherein the plastic container comprises:

5 a mouth;
a bottom surface; and
a container wall between the mouth and the bottom surface,
wherein one of the bottom surface or the container wall flexes inward into the
cavity of the plastic container;

10 wherein further the inward flexing of the bottom surface of the container wall
reduces a pressure differential between the inside of the container and atmospheric
pressure when either the container is hot-filled with food product or when the container is
transported from a locale of lower atmospheric pressure to higher atmospheric pressure;
and

15 wherein further the non-flexing surface maintains the same form from prior to
hot-filling or transport.

19. The method of claim 18, wherein the thickness of the container walls decreases from a
point substantially at the mouth to a point substantially at the bottom surface.

20. The method of claim 18, wherein the bottom surface flexes inward into the container
20 cavity.

21. The method of claim 20, wherein the circumference of the mouth is greater than the
circumference of the bottom surface.

22. The method of claim 21, wherein the plastic comprises a plastic suitable for solid phase pressure forming.
23. The method of claim 22, wherein the plastic further comprises polypropylene.
24. The method of claim 23, wherein the plastic further comprises a barrier enhancement agent.
- 5 25. The method of claim 24, wherein the barrier enhancement agent comprises ethylene vinyl acetate-vinyl alcohol.
26. The plastic container of claim 25, wherein the plastic further comprises an adhesive suitable for solid phase pressure forming.
- 10 27. The plastic container of claim 26, wherein the adhesive comprises an antioxidant
28. The plastic container of claim 22, wherein the plastic container is formed from a plastic sheet comprising up to about 15 volume % ethylene vinyl acetate-vinyl alcohol, about 80 to about 90 volume % polypropylene and about 15 to about 20 volume % adhesive.
29. The plastic container of claim 18, wherein the plastic container is formed from a plastic sheet having one or more layers, and wherein further the thickness of the container walls are about 70-80 volume % of the thickness of the plastic sheet at a location substantially adjacent to the container mouth and about 20-40 volume % of the sheet at a location substantially adjacent to the bottom surface, and the thickness of the bottom surface is about 15-20 volume % of the thickness of the plastic sheet.
- 15 30. The plastic container of claim 29, wherein the container wall thickness uniformly decreases from a location substantially adjacent to the container mouth to a point substantially adjacent to the bottom surface.
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31. The plastic container of claim 30, wherein the container walls are about 0.7 mm thick at a location substantially adjacent to the container mouth and about 0.28 mm thick at a point substantially adjacent to the bottom surface, and the thickness of the bottom surface is about 0.16 mm.